

Having described the invention, the following is claimed:.

1. An apparatus comprising:

an electric motor having a rotor that is rotatable relative to a stator, the rotor being formed from a series of laminations and having a plurality of rotor poles, the stator encircling the rotor and having a plurality of stator poles;

each stator pole having a winding that is energizable to cause rotation of the rotor relative to the stator;

a first sensor for sensing actual inductance in a respective stator winding and for providing a signal indicative of the actual inductance;

a second sensor for sensing a position of the rotor relative to the stator and for providing a rotor position signal; and

a controller for receiving the rotor position signal and for receiving the actual inductance signal, the controller determining a reference inductance for the respective stator winding based on the rotor position signal, determining a difference between the actual inductance and the reference inductance, and

preventing further energization of the stator windings when the difference between the actual inductance and reference inductance exceeds a predetermined amount.

2. The apparatus of claim 1 further being defined by:

the controller including a look-up table for determining the reference induction from the rotor position signal.

3. The apparatus of claim 2 further being defined by:

the apparatus including power switches that are interposed between the controller and the stator windings;

the power switches opening in response to a signal from the controller to prevent energization of the stator windings.

4. The apparatus of claim 3 further being defined by:

the second sensor being a Hall effect device.

5. The apparatus of claim 1 further being defined by:

the electric motor being a variable reluctance electric motor.

6. The apparatus of claim 1 further being defined by:

the electric motor being a permanent magnet alternating current electric motor.

7. The method of controlling an electric motor having a rotor that is formed from a series of laminations and that has a plurality of rotor poles and having a stator that encircles the rotor and that has a plurality of stator poles, the method comprising the steps of:

sequentially energizing stator windings associated with each stator pole of the plurality of stator poles to cause the rotor to rotate relative to the stator;

sensing actual inductance in a respective stator winding;

sensing a position of the rotor relative to the stator;

determining a reference inductance for the respective stator winding based on the sensed rotor position;

determining a difference between the actual inductance and the reference inductance; and

preventing further energization of the stator windings when the difference between the actual inductance and reference inductance exceeds a predetermined amount.

8. The method of claim 7 wherein the step of determining a reference inductance for the respective stator winding based on the sensed rotor position further being defined by the step of:

accessing a look-up table that correlates sensed rotor position and reference inductance; and

using the reference inductance that is correlated to the sensed rotor position.